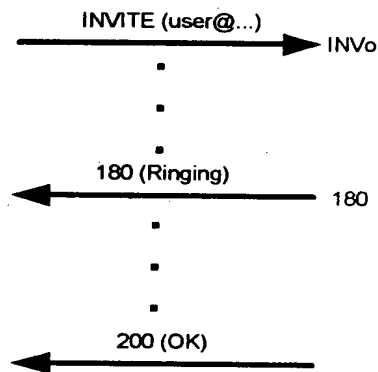
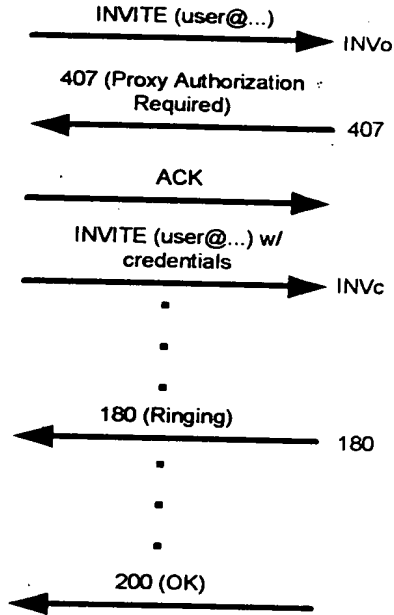


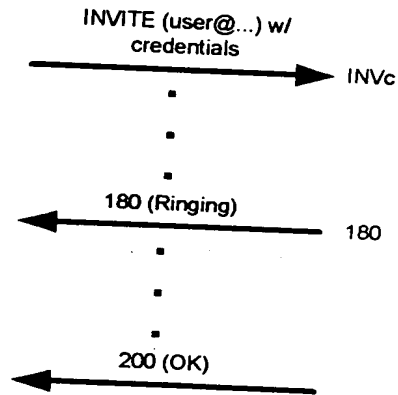
**Figure 1: SIP Architecture**



**Figure 2: Unauthenticated Call Initiation**



**Figure 3: Full Authentication Call Initiation**

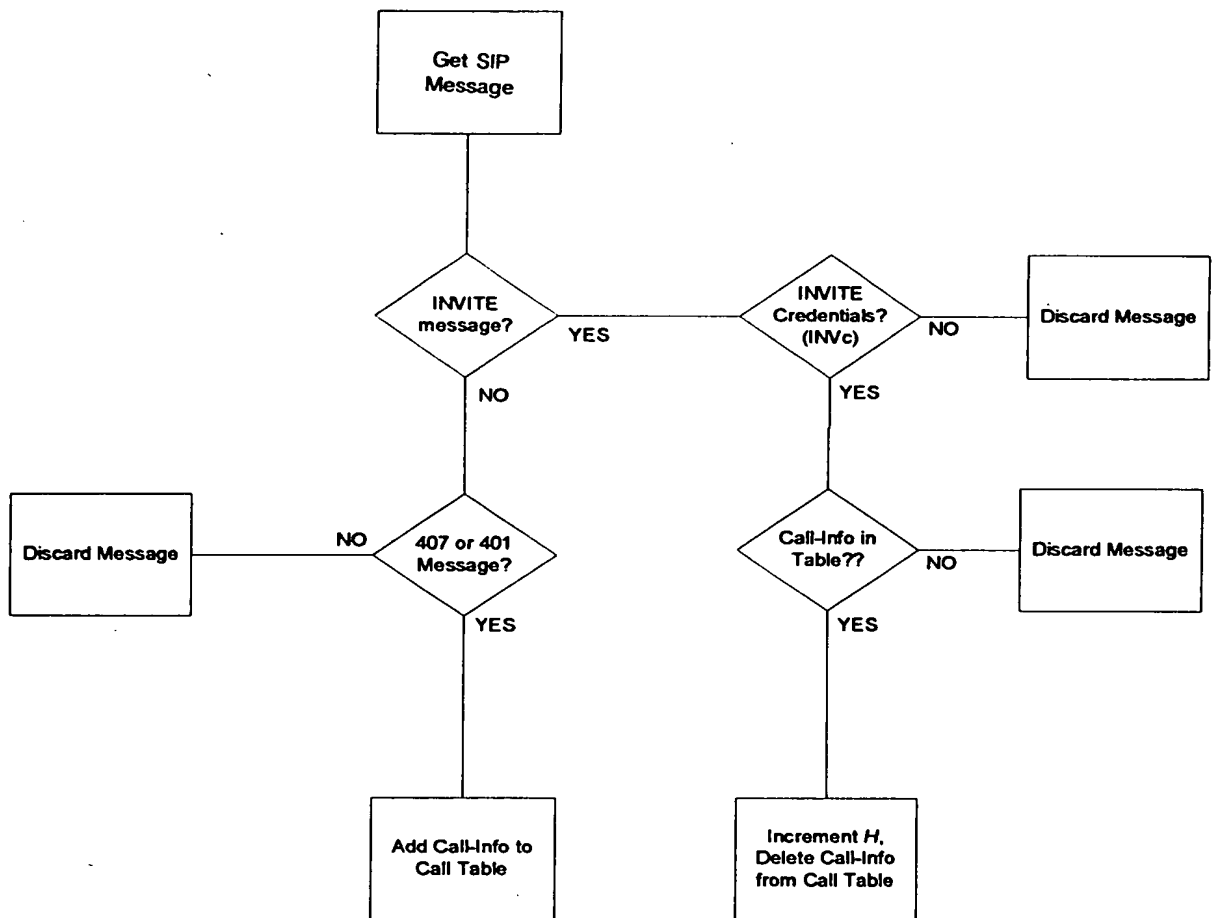


**Figure 4: Pre-authenticated Call Initiation**

$$0 \approx INV_o + INV_c - H - N_{180}$$

$N_{180}$  represents outgoing 180 Ringing messages.

**Figure 5: Attack Detection Equation**



**Figure 6: Hit Table Flowchart**